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UNITED STATES DISTRICT COURT

DISTRICT OF NEVADA

PETER J. VOGGENTHALER; VICTOR BECERRA; ARTHUR BODENDORFER; BRENDA C. CHAFFIN; MICHAEL J. SOLMI; JASON COWLES; JANE GAUTHIER; HONORE GAUTHIER; NIKOLAS KONSTANTINOU; DRAGAN KURAJICA; KENNETH LOWTHER; JAMES LUEHMANN; JACQUELINE LUEHMANN; RUTH MANNHEIMER; WILLIAM MONTERO; BARBARA MONTERO; CLIFFORD ROGERS; SHARON ROGERS; HERMANN ROSNER; MARKUS ROTHKRANZ; DANIEL SOLDINI; CHARLES WALKER; VERNA WALKER; JACK YENCHEK; OFELIA YENCHEK; RICHARD MALM; ROGER ELLSWORTH; JO ANN ELLSWORTH; MARGARET RUDELICH-HOPPE; PATRICIA MAHONEY, individually and as trustee for the MAHONEY LIVING TRUST; RICHARD FALEN; PETER LEARNED; KRISTIAN MEIER; ELIZA ACOSTA; MIRHA ELIAS; AIKO BERGE

Case No.: 2:08-cv-01618-LDG-GWF

DECLARATION OF ROBERT A. HOWE IN SUPPORT OF SUPPLEMENTAL OPPOSITION TO MOTION FOR SUMMARY JUDGMENT

Plaintiffs,

vs.

MARYLAND SQUARE, LLC; MARYLAND SQUARE SHOPPING CENTER LIMITED LIABILITY COMPANY; HERMAN KISHNER dba MARYLAND SQUARE SHOPPING CENTER; IRWIN KISHNER, JERRY ENGEL, BANK OF AMERICA as Trustees for the HERMAN KISHNER TRUST; CLARK COUNTY SCHOOL DISTRICT; THE BOULEVARD MALL, as successor-in-interest/surviving corporation/agent for BOULEVARD ASSOCIATES, LLC; BOULEVARD MALL I LLC, as successor-in-interest/surviving corporation/agent for BOULEVARD ASSOCIATES, L.L.C.; BOULEVARD MALL II LLC, as successor-in-interest/surviving corporation/agent for BOULEVARD ASSOCIATES, LLC; CONSTRUCTION DEVELOPERS INC.; FEDERATED WESTERN DEPT. STORES, INC.; GENERAL GROWTH PROPERTIES; MELVIN SHAPIRO; SHAPIRO BROS. INVESTMENT CO.; DELIA'S CLEANERS OF ARIZONA, INC.; CB RICHARD ELLIS

Defendants.

MARYLAND SQUARE SHOPPING CENTER, LLC, THE HERMAN KISHNER TRUST DBA MARYLAND SQUARE SHOPPING CENTER, IRWIN KISHNER, JERRY ENGEL, BANK OF AMERICA, AS TRUSTEES FOR THE HERMAN KISHNER TRUST, MARYLAND SQUARE, LLC AND THE CLARK COUNTY SCHOOL DISTRICT'S,

Third Party Plaintiffs,

vs.

GENERAL GROWTH MANAGEMENT, INC., a foreign corporation; BOULEVARD MALL, LLC, a foreign limited liability company; SEARS ROEBUCK & CO., a foreign corporation; GOOD YEAR TIRE & RUBBER CO., a foreign corporation; WIENS PROPERTIES, LLC, a Nevada Limited Liability Company; TERRIBLE HERBST, INC., a Nevada corporation, SUPERIOR TIRE, INC., a dissolved Nevada corporation, DR. CLEAN MANAGEMENT, INC., a revoked Nevada corporation, THE HOYT CORPORATION, a

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Maryland corporation, BOWE PERMAC, INC., a Texas corporation, and GOSS-JEWETT & CO., a suspended California corporation.

Third Party Defendants.

I, Robert A. Howe, declare as follows:

1. I am one of the Experts disclosed by the Maryland Square Defendants in this action. My report, opinions, supporting documentation, and rebuttal opinions have been disclosed during this litigation.

BACKGROUND AND EXPERIENCE

2. I have over 20 years of experience in planning and implementing remedial investigations/feasibility studies (RI/FS) and all other phases of remediation at hazardous waste sites. Many of the facilities I have been involved with have required development of plans and ultimately decision documents that comply with the requirements of the National Contingency Plan (NCP).

3. I have extensive experience using modern methods and advanced strategies for the cleanup of contamination at former dry cleaner sites and other types of hazardous waste sites that involve sampling and analysis to support the quantification of risks associated with soil, groundwater, and vapors.

4. As a former environmental laboratory manager, field geologist, and senior project manager, I understand every aspect of field projects, from planning through regulatory negotiation, implementation, preparation of decision documents, and litigation support.

5. Many of my RI/FS efforts have involved sites with long histories of operation and complex conceptual site models (CSMs). As a technical advisor or project manager, I have worked at many chlorinated solvents sites located across the U.S.

6. I am familiar with most of the emerging state and federal requirements being used to identify and remediate risk related issues relative to vapor intrusion.

7. I have been involved with numerous litigation support efforts at large and small hazardous waste sites as a technical support person and technical expert.

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8. I have been retained and have testified in a previous court case in support of Environmental Protection Agency (EPA) Region V and the U.S. Department of Justice (DOJ) in the case of case of U.S. vs. Apex Oil Company ILS, 05-2420 that dealt specifically with imminent threats to human health and the environment from groundwater and vapor related issues.

PCE IN GROUNDWATER BENEATH THE SITE DOES NOT POSE AN IMMINENT AND SUBSTANTIAL THREAT TO HUMAN HEALTH AND THE ENVIRONMENT

9. A stable dissolved-phase plume of tetrachloroethylene (PCE) is present in the shallow nuisance aquifer present beneath the area down gradient of the Maryland Square Mall and Boulevard Mall located in Las Vegas, Nevada. Multiple potential sources of this shallow regional groundwater PCE plume have been identified. Including the Dr. Clean facility located at 1195 E. Desert Inn Road, Las Vegas, Nevada. Dissolved-phase PCE concentrations at this site are similar to those found at the other currently identified potential source area, the former Al Phillips the Cleaner (APTC) site located at 3661 South Maryland Parkway, Las Vegas, Nevada.

10. The dissolved-phase PCE plumes from these two sites do not pose a threat to human health or the environment through ingestion or direct contact. The shallow aquifer is non potable because of high total dissolved solids, metals, and odors and has no beneficial use now or in the foreseeable future in the Las Vegas Valley. The shallow aquifer is vertically isolated from any potable water source in the area by over 300 feet of non-porous clay. Hydrogelogic gradients in the potable water sources in the area are upward in the Las Vegas Valley, which means that water from deeper zones are under pressure and would tend to create upward pressure that further restrict any downward movement of the shallow nuisance shallow groundwater beneath the area (See **Ex. A**, Zikmund, 1996).

11. Neither of the above identified potential sources of the regional PCE shallow groundwater plume represents a substantial source of contamination, and are the result of releases of lesser amounts of PCE from former dry cleaner operations. Previous investigations have focused on the APTC site, but have failed to properly characterize the Dr. Clean facility and other potential sources of PCE in the area. Only three permanent wells have been placed down

gradient of the Dr. Clean site, far fewer than have been installed near the former APTC facility even though the levels of PCE in shallow groundwater beneath both of the identified sources are very similar (See **Ex. B**, OGI, 2010). The two source areas naturally funnel into the same residential areas where the regional PCE shallow groundwater plume is present (See **Ex. C**, Howe, March 2010).

12. Based on a review of the Nevada Department of Environmental Protection (NDEP) well database performed by Tetra Tech in conjunction with Mr. Steve Walmsley, Staff Engineer for the Nevada Division of Water Resources (DWR) on April 2, 2010, there are no domestic water supply wells currently in use that are located near the regional PCE plume located in the area. The single irrigation well located down gradient of the sites that has been impacted as a result of improper well construction had reported concentrations in 2006 that were below EPA's Maximum Contaminant Level (MCL) for PCE of 5 micrograms per liter (ug/l) [See **Ex. D**, NDEP, 2007].

13. Concentrations of PCE in soil beneath the APTC site are generally low, below 10 milligrams per kilogram (mg/kg). These levels are below those levels that would impact groundwater at concentrations that could result in unacceptable concentrations in vapors that might impact residences and industrial workers. Concentrations in groundwater need to be over 17 mg/kg before they have the potential for impacting residences above EPA risk based screening levels as can be predicted using EPA's Johnston and Ettinger Model. (See **Ex. E**, Howe, April, 2010). Using the conservative default parameters in the Johnson and Ettinger Model (1991), groundwater concentrations that would result in a concentration in indoor air that would exceed the EPA 10^{-4} cancer risk based screening level for indoor air of 41 ug/m^3 would be 872 ug/l. Using the minimum dilution attenuation factor (DAF) of 20 times accepted by NDEP (See **Ex. F**, NDEP, 2008) the resulting soil concentration that could result in a concentration in groundwater of 872 ug/l would be at least 20 times higher than the level of concern predicted using the Johnson and Ettinger Model or 17 mg/kg in soil. Only two samples from the same area beneath the APTC site had concentrations above this level. Suggesting the source area is very localized and will not act as a substantial source of PCE contamination now or in the future.

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14. Concentrations of PCE in groundwater and soil are similarly low, far below those that would indicate the potential for dense non-aqueous phase liquids (DNAPLs) to be present beneath the former APTC facility. DNAPLs can represent substantial long term sources for PCE to groundwater. However, PCE is essentially the only organic contaminant found in the shallow groundwater beneath the APTC facility. This means that there are no other contaminants that can compete for sorption or solubility and reduce the concentration in soil and groundwater that can be associated with the presence of DNAPL. Therefore, if DNAPL were present the expected concentrations in groundwater associated with DNAPL would approach the theoretical solubility for PCE of 150,000 ug/l (Cohen, R.M. and Mercer, 1993). Using conservative inputs the Massachusetts Department of Environmental Protection (MDEP) estimates that the soil saturation index for PCE based on EPA's Soil Screening Guidance (EPA, 1996) should be around 366,000 micrograms per kilogram (ug/kg) (See http://www.mass.gov/dep/service/compliance/riskasmt.htm). This concentration is more than double the highest concentration for PCE of 120,000 ug/kg found beneath the APTC site (See **Ex. G**, URS, 2007b). DNAPL is generally not present in soil if the concentration of PCE does not exceed the soil saturation index.

15. The highest detected concentrations for PCE measured in shallow groundwater in the area are not beneath the former APTC facility. Below the Boulevard Mall, near another potential source area, located near well MW-13, the maximum concentration of PCE was detected in groundwater at 5,300 ug/l (See **Ex. H**, Converse Consultants, 2010). These concentrations measured in well MW-13 do not approach the theoretical solubility for PCE of 150,000 ug/l that would be representative of the presence of DNAPL (Cohen, R.M. and Mercer, 1993). In fact, this maximum concentration is less than 4 percent of the theoretical solubility, which implies that DNAPL is not present at any of the currently identified or other suspected source areas near the regional PCE plume.

16. There are many factors that can influence the concentrations in groundwater that are in equilibrium with a DNAPL mixture, but by far the greatest potential impacts can be

attributed to the presence of significant quantities of other organic contaminants, usually hydrocarbons, that compete for solubility sites in the water. This phenomenon according to EPA is known as effective solubility and is related to the mole fraction or percentage that a specific compound makes up in a DNAPL mixture (See http://www.epa.gov/athens/learn2model/part-two/onsite/es.html.).

17. Based on my review of the chromatograms and analytical results from the PCE plume in the Area surrounding the MSSC and the Boulevard Mall very few chemicals or other hydrocarbon mixtures are present except PCE in the shallow groundwater. The effective solubility of PCE in groundwater near a DNAPL should approach the theoretical solubility of 150,000 ug/l. No concentrations measured from the area for PCE come close to this level, therefore it is certain that a persistent DNAPL related source is not present in and surrounding the former APTC facility.

18. Because no persistent DNAPL source is present beneath the Former APTC facility and data for groundwater in wells in the area suggest that the plume is stable, there is no reason to believe that PCE contaminated shallow groundwater present beneath the area will migrate to where contamination could impact human health and the environment.

THE POTENTIAL FOR A THREAT TO HUMAN HEALTH FROM PCE IN INDOOR AIR DOWNGRADIENT OF THE MARYLAND SQUARE SITE HAS NOT BEEN SUBSTANTIATED

19. EPA Office of Solid Waste and Emergency Response (OSWER) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (See Subsurface Vapor Intrusion Guidance, 2002) suggests a three tiered approach to the estimation of risk associated with vapor intrusion.

20. In EPA's approach initial screening that has no specific requirements is followed by a Tier II approach in which groundwater, soil gas, and geologic information are collected to define critical conditions at the site. These conditions control the reliability of modeled results, which are then used to identify where Tier III activities should be conducted.

21. In Tier III detailed site specific pathway information is suggested for collection

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along with sub-slab sampling and indoor air sampling to evaluate if there is a potential that risks could potentially exceed a calculated risk in the range between the 10^{-4} to 10^{-6} carcenogenic risk values or a non carcenogenic risk quotient of greater than 1.

22. In the DoD Vapor Intrusion Handbook (See January, 2009, page 27, Table3-1) the Tr-Services Environmental Risk Assessment Workgroup points out that individual indoor air samples may not be representative of long term exposure concentrations. Further on page 28 of the guidance the work group states, that multiple samples of indoor air should be collected from various areas of a home to support risk assessment needs. They further recommend that samples be collected from indoor air during periods of the year when heating is likely to be occurring and periods of the year when air conditioning or no heating is occurring. In doing so indoor air values can be averaged more reliably for supporting a risk assessment.

23. Page 33 of this guidance specifically states that multiple lines of evidences need to be used before it can be determined that the vapor intrusion pathway is complete and a risk is posed at a site. These multiple lines of evidence include the following: concurrent indoor and outdoor air sampling, impacts from geology, results of a risk assessment, sub-slab data and, many other factors (See DoD Vapor Intrusion Handbook, January, 2009).

24. At the request of NDEP, and on the behalf of DCI, the former operator of the APTC facility, URS did some limited groundwater and soil vapor analyses over a small portion of the potentially impacted residential area (See **Ex. I**, URS 2007a).

25. A review of this work indicates groundwater well installations and vapor probe locations were not evenly spaced across the impacted area and the data are insufficient to account for impacts from the highly variable geology present in the area above the PCE groundwater plume. In addition, NDEP used default modeling parameters to estimate the potential for impacts to the nearby residences (personal communication Steven Geyer from NDEP (Mary Siders) March 3, 2010). These defaults would have been inherently unreliable because of the high degree of heterogeneity of geology in soil from the area.

26. The geology at the site varies from clay to sand over very short distances and because of these conditions site specific data will be needed before model estimates can be

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reflective of actual site conditions. The NDEP also selected an arbitrary action level modified after a New Jersey Depart of Environmental Protection (NJDEP) screening criteria and not EPA human health risk based action levels.

27. NDEP has evaluated vapor intrusion in the project area by collecting single point 24 hour time weighted averages from biased locations where cracks in a sub-slab or other building weaknesses were identified using a photo ionization detector (See **Ex. J,** Broadbent and Associates Inc., July 2008). The initial sampling events were conducted from September 2007 through March 2008 at 97 residential properties. A single outdoor air sample was collected near one residence and no sub-slab or near sub-slab data was collected.

28. During this process NDEP failed to follow EPA and other relevant state and publicly available guidelines for evaluating risk associated with vapor intrusion. They did so by biasing sampling locations and not simultaneously collecting additional site specific pathway data. They also failed to collect sub-slab data based on reliable modeling results that took into account site specific geology or soil type as suggested by EPA (See EPA, 2002).

29. The sampling methods and protocols NDEP used to evaluate vapor-related issues in this portion of the project area were not appropriate for the collection of data that are representative of actual site conditions. This is based on the fact that (1) sample collection was limited to a single biased sample from each home, (2) potential background concentrations of PCE within and outside each home before or during sampling were not evaluated appropriately, and (3) samples were also not collected at multiple times of the year to develop representative estimates of PCE concentrations in indoor air for evaluating long term risks of exposure to residences.

30. The Interstate Technology and Regulator Council (See ITRC, 2007) and DoD (DoD, 2009) guidance on evaluating risks associated with vapor intrusion indicate that data should be collected from the time of the year when heating is occurring, as a worst case scenario and also again when air conditioning may be occurring, as a best case and the data combined for use in a risk assessment. No such paired data sets were collected from residences in the area and no risk assessment has been performed, even though it was noted that cooling systems in the

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homes had a substantial impact on the sub-slab depressurization systems installed in 14 homes at the site (See **Ex. K**, Broadbent, 2010). The increase in pressure caused by air conditioning and the fact that it reduced the efficiency of sub-slab depressurization systems in certain homes suggests that concentrations in homes during months of the year when air conditioning is in use could be much lower than those measured during the brief winter months when heating is needed in the Las Vegas area.

31. The NDEP screening level of 32 micrograms per meter cubed (ug/m^3) was selected based on conversations between NDEP and the New Jersey Department of Environmental Protection (NJDEP) in December of 2008. During this discussion, NJDEP noted that they have a rapid action level of 30 ug/m^3, which is in part based on sub-slab data. However, no sub-slab data had been collected at the plainitffs' properties at the time when NDEP applied their adopted action level. The NJDEP uses their rapid action level primarily to identify the need to collect additional data.

32. In a letter dated March 17, 2009 (See **Ex. L**, Robertson and Vick, page 2), notes that EPA's Office of Solid Waste and Emergency Response recommends using a concentration in indoor air of 1.2 ug/m^3, corresponding to the 10^{-6} cancer risk level using the California EPA Inhalation Unit Risk (IUR), as a point of departure for determining remediation goals. EPA considers remediation goals in the range 10^{-6} to 10^{-4} when arriving at action levels for PCE sites taking into account the design of homes, background concentrations, and many other factors. This suggests that an action level in the range from 1.2 (10^{-6} risk) and 120 (10^{-4} risk) ug/m^3 should be considered for the MSSC site. No reported results from the site currently exceed the 10^{-4} risk threshold of 120 ug/m^3 put forth by Robertson and Vick (See **Ex. C**, Howe, March 2010).

33. Therefore, until sufficient indoor and outdoor air, soil and soil gas data, and a risk assessment is performed no mitigation actions should have been considered based on the arbitrary action level of 32 ug/m^3 selected by NDEP and the default parameters and incomplete data sets used to evaluate the need for action. The potential for a threat to human health from PCE in indoor air down gradient of the Maryland Square site has not been substantiated.

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34. I declare under penalty of perjury that the foregoing is true and correct.

Date: June 21st, 2010.

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